

Claims

1. A system for facilitating trading two items from the group of items comprising commodities and financial instruments, said system comprising:

at least two agents that want to trade the items;

a trading channel between the two agents allowing for the execution of trades;

flow limits on the traded items and on any underlying instruments to be exchanged upon settlement of the traded items; and

a central computer coupled to the two agents, said computer adapted to convey to each agent current tradable bid and offered prices and sizes subject to the agent's flow limits.

2. The system of claim 1 wherein both agents are coupled to the central computer when they are trading.

3. The system of claim 1 wherein at least one agent is a credit-extending agent.

4. The system of claim 1 wherein there are at least two credit-extending agents having trading channels with a single non-credit-extending agent.

5. The system of claim 1 wherein there are at least two non-credit-extending agents having trading channels with a single credit-extending agent, wherein said credit-extending agent has instructed the central computer that it is

1 permissible to have two non-credit-extending agents perform  
2 trades via said credit-extending agent.

3  
4 6. The system of claim 5 wherein the two non-credit-  
5 extending agents do not have an available trading channel  
6 between them, and the credit-extending agent yields some of  
7 its trading channel capacity to the two non-credit-extending  
8 agents.

9 7. The system of claim 1 wherein there are at least two  
10 credit-extending agents having trading channels with a single  
11 non-credit-extending agent; and

12 there are at least two non credit-extending agents  
13 having trading channels with the same credit-  
14 extending agent, which credit-extending agent has  
15 instructed the central computer that it is  
16 permissible to have two non-credit-extending  
17 agents perform trades via said credit-extending  
18 agent.

19  
20 8. The system of claim 1 wherein the central computer  
21 updates the current tradable information after each trade.

22 9. A system for facilitating the trading of items from  
23 the group of items comprising commodities and financial  
24 instruments, said system comprising:

25 a plurality of agents that wish to trade the items,  
26 wherein each agent is coupled to at least one  
27 other agent via a trading channel; and  
28

1 a central computer that conveys to each agent  
2 current tradable bid and offered prices and sizes  
3 subject to the agent's trading and flow limits;  
4 wherein  
5 there is at least one non-credit-extending agent  
6 having trading channels with at least two credit-  
7 extending agents; and  
8 there is at least one commonly-coupled credit-  
9 extending agent having trading channels with at  
10 least two non-credit-extending agents, wherein  
11 said commonly-coupled credit-extending agent has  
12 instructed the central computer that it is  
13 permissible to have at least two non-credit-  
14 extending agents perform trades via said commonly-  
15 coupled credit-extending agent.  
16

17 10. The system of claim 1 further comprising a second  
18 computer coupled to the central computer, adapted to affix  
19 date and time stamps on trade orders posted by the agents.  
20

21 11. The system of claim 1 wherein at least one agent  
22 comprises a computer having a standard application programming  
23 interface (API), wherein the API is coupled to the central  
24 computer and enables the agent to write customized  
25 instructions to facilitate two-way communication between the  
26 agent and the central computer.  
27  
28

1           12. The system of claim 11 wherein the agent is a  
2 credit-extending agent and the API enables the agent to update  
3 the agent's backoffice information.  
4

5           13. The system of claim 11 wherein the API is programmed  
6 to make and cancel orders.  
7

8           14. The system of claim 11 wherein the API receives and  
9 reformats the agent's current tradable bid and asked  
10 information for any traded items.  
11

12           15. The system of claim 11 wherein the API sets trading  
13 limits.  
14

15           16. The system of claim 11 wherein the API estimates how  
16 much it would cost the agent to liquidate the agent's position  
17 in a traded item.  
18

19           17. The system of claim 11 wherein the API is programmed  
20 to estimate the agent's current profit/loss amount for each  
21 item being traded.  
22

23           18. The system of claim 11 wherein the API is programmed  
24 to automatically execute trades.  
25

26           19. A trading system comprising a non-disjointed network  
27 of j credit-extending agents and k non-credit-extending  
28 agents, where j and k are each positive integers at least  
equal to two; wherein

the agents are connected via trading channels; and

the agents are adapted to trade items from the group

of items comprising commodities and financial

instruments; said system further comprising:

1 a central computer coupled to the agents, said  
2 computer being adapted to calculate, for each pair  
3 of items being traded, topology-dependent  
4 individual trading limits for each agent.  
5

6 20. A non-disjointed network comprising:

7 j credit-extending agents and k non-credit-extending  
8 agents, where j and k are each positive integers  
9 at least equal to two;

10 a plurality of trading channels coupling the agents  
11 to each other, wherein the trading channels permit  
12 the agents to trade items from the group of items  
13 comprising commodities and financial instruments;  
14 and

15 a central computer which, for each pair of items  
16 being traded, converts the network into a  
17 virtually cliqued network.  
18

19 21. The system of claim 19 wherein, after each trade,  
20 the central computer re-computes the trading limits, thereby  
21 changing the topology of the network.

22 22. The system of claim 21 wherein changing the trading  
23 limits for a given pair of items forces a change in the  
24 trading limits for at least one other pair of items.

25 23. The system of claim 19 wherein the central computer  
26 presents a standardized application programming interface  
27 enabling any agent to connect thereto.  
28

1           24. The system of claim 19 wherein each agent comprises  
2 means for displaying:

3               said agent's current position in each item traded;

4               and  
5

6               said agent's currently available trading limits, for  
7               all item pairs, with its immediate neighboring  
8               agents.

9           25. The system of claim 19 wherein the central computer  
10 prepares, for each agent, a custom limit order book taking  
11 into account multi-hop trading limits.

12           26. The system of claim 19 wherein the central computer  
13 removes trading channels in instances where a credit-extending  
14 agent has not authorized acting as an intermediary for back-  
15 to-back trades.

16           27. The system of claim 19 wherein the trading limits  
17 are derived from at least one specified input credit limit  
18 from the group of specified input credit limits comprising  
19 position limits for lot items, position limits for quoted  
20 items, volume limits for lot items, volume limits for quoted  
21 items, notional position limits, notional volume limits, item  
22 pair position limits, and item pair volume limits.

23           28. The system of claim 27 wherein the central computer  
24 converts the specified input credit limits into trading limits  
25 for each pair of items being traded, and places said trading  
26 limits into custom limit order books for each agent, said  
27 custom limit order books taking into account multi-hop trades.  
28

1           29. The system of claim 19 wherein the trading limits  
2 take into account an input lot item position credit limit  
3 specified by a credit-extending agent.  
4

5           30. The system of claim 19 wherein the trading limits  
6 take into account an input quoted item position credit limit  
7 specified by a credit-extending agent.

8           31. The system of claim 19 wherein the trading limits  
9 take into account an input volume credit limit for a lot item  
10 specified by a credit-extending agent.

11           32. The system of claim 19 wherein the trading limits  
12 take into account an input volume credit limit for a quoted  
13 item specified by a credit-extending agent.

14           33. The system of claim 19 wherein the trading limits  
15 take into account an input notional position credit limit  
16 specified by a credit-extending agent.

17           34. The system of claim 19 wherein the trading limits  
18 take into account an input notional volume credit limit  
19 specified by a credit-extending agent.  
20

21           35. The system of claim 19 wherein the trading limits  
22 take into account an input traded item position credit limit  
23 specified by a credit-extending agent.

24           36. The system of claim 19 wherein the trading limits  
25 take into account an input traded item volume credit limit  
26 specified by a credit-extending agent.

27           37. The system of claim 19 wherein, after each trade  
28 between a buying agent and a selling agent, the central

1 computer issues a deal ticket to an auditor, an in flow ticket  
2 to the buying agent, and an out flow ticket to the selling  
3 agent.  
4

5 38. The system of claim 37 wherein:

6 the trade is a multi-hop trade;

7 there is at least one intermediate agent situated in  
8 the flow between the buying agent and the selling  
9 agent;

10 the buying agent and the selling agent are unknown  
11 to each other;

12 the deal ticket contains the identity of each  
13 intermediate agent;

14 the in flow ticket contains the identity of just an  
15 immediate neighboring agent; and

16 the out flow ticket contains the identity of just an  
17 immediate neighboring agent.  
18

19 39. The system of claim 37 wherein each ticket is  
20 digitally signed by the central computer.

21 40. The system of claim 37 wherein each ticket is  
22 encrypted by the central computer.

23 41. The system of claim 40 wherein the in flow ticket is  
24 encrypted to the buying agent and to the auditor, but not to  
25 the central computer.

26 42. The system of claim 40 wherein the out flow ticket  
27 is encrypted to the selling agent and to the auditor, but not  
28 to the central computer.



1           43. A method for an agent to trade with a counterparty  
2 an item from the group of items comprising commodities and  
3 financial instruments, said method comprising:

4           receiving from a central computer a custom limit  
5           order book which takes into account multi-hop  
6           trading limits with other agents coupled to the  
7           central computer; and  
8           communicating an order to the central computer based  
9           upon information contained in the custom limit  
10          order book.

11  
12          44. A computer adapted to facilitate trading among a  
13 plurality of agents items from the group of items comprising  
14 commodities and financial instruments, said computer  
15 comprising:

16          means for converting specified input credit limits  
17          into a set of trading limits;  
18          coupled to the converting means, means for  
19          postulating the trading limits as a set of multi-  
20          hop trading limits; and  
21          coupled to the postulating means, means for  
22          communicating the multi-hop trading limits to the  
23          agents in the form of a custom limit order book  
24          for each agent, taking into account all of the  
25          specified input credit limits.

26  
27          45. The computer of claim 44 wherein the postulating  
28 means comprises means for applying a maximum flow algorithm.

1           46. A computer readable medium comprising computer  
2 program instructions for enabling an agent to trade items from  
3 the group of items comprising commodities and financial  
4 instruments, said computer program instructions enabling said  
5 agent to perform the steps of:  
6

7           receiving from a central computer a custom limit

8           order book which takes into account multi-hop

9           trading limits with other agents coupled to the

10          central computer; and

11          communicating an order to the central computer based

12          upon information contained in the custom limit

13          order book.

14           47. A method by which a computer facilitates trading,  
15 among a plurality of agents, items from the group of items  
16 comprising commodities and financial instruments, said  
17 computer performing the steps of:

18          converting specified input credit limits into a set

19          of computerized trading limits;

20          graphing a network comprising nodes representing

21          agents, said nodes being connected by paths

22          representing the trading limits;

23          deriving from the graph a set of multi-hop trading

24          limits between each pair of agents; and

25          communicating the multi-hop trading limits to the

26          agents in the form of a custom limit order book  
27  
28

1                   for each agent, said custom limit order book  
2                   taking into account the topology of the network.

3           48. The method of claim 47 wherein the deriving step  
4           comprises applying a maximum flow algorithm.

5           49. A first agent computer adapted to trade with other  
6           agent computers items from the group of items comprising  
7           commodities and financial instruments, said first agent  
8           computer comprising:

9                   a display; and

10                   displayed on the display, a custom limit order book  
11                   showing, for each pair of items to be traded,  
12                   multi-hop trading limits between said first agent  
13                   computer and each of said other agent computers.

14           50. The first agent computer of claim 49, further  
15           comprising an application programming interface.

16           51. The first agent computer of claim 49 wherein the  
17           multi-hop trading limits take into account specified input  
18           credit limits.

19           52. The first agent computer of claim 51 wherein the  
20           specified input credit limits comprise at least one limit from  
21           the group of limits comprising position limits for lot items,  
22           position limits for quoted items, volume limits for lot items,  
23           volume limits for quoted items, notional position limits,  
24           notional volume limits, traded item position limits, and  
25           traded item volume limits.

1  
2 53. A method by which a first agent trades with other  
3 agents items from the group of items comprising commodities  
4 and financial instruments, said method comprising said first  
5 agent performing the steps of:

6 viewing a custom limit order book showing, for each  
7 pair of items to be traded, multi-hop trading  
8 limits between said first agent and each of said  
9 other agents; and

10 executing a maneuver from the set of maneuvers  
11 comprising placing an order to be considered by  
12 said other agents and taking an order placed by  
13 one of said other agents.

14 54. The method of claim 53 wherein the step of executing  
15 a maneuver comprises taking less than an entire order.

16 55. A computer readable medium comprising computer  
17 program instructions for enabling a central computer to  
18 facilitate trading, among a plurality of agents, items from  
19 the group of items comprising commodities and financial  
20 instruments, said computer program instructions enabling said  
21 central computer to perform the steps of:

22  
23 converting specified input credit limits into a set  
24 of computerized trading limits;

25 graphing a network comprising nodes representing  
26 agents, said nodes being connected by paths  
27 representing the trading limits;  
28

deriving from the graph a set of multi-hop trading  
limits between each pair of agents; and  
communicating the multi-hop trading limits to the  
agents in the form of a custom limit order book  
for each agent, said custom limit order book  
taking into account the topology of the network.